

In vitro Susceptibility of Isolated *Shigella flexneri* and *Shigella dysenteriae* to the Ethanolic Extracts of *Trachyspermum ammi* and *Peganum harmala*

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Abstract : *Trachyspermum ammi* belongs to the family Apiaceae, is used traditionally for the treatment of gastrointestinal ailments, lack of appetite and bronchial problems as well used as antiseptic, antimicrobial, antipyretic, febrifugal and in the treatment of typhoid fever. *Peganum harmala* belongs to the family Zygophyllaceae it has been reported to have an antibacterial activity and used to treat depression and recurring fevers. It also used to kill algae, bacteria, intestinal parasites and molds. In Sudan, the combination of two plants are traditionally used for the treatment of bacillary dysentery. Bacillary dysentery is caused by one or more types of *Shigella* species bacteria mainly *Shigella dysenteriae* and *Shigella flexneri*. Bacillary dysentery is mainly found in hot countries like Sudan with poor hygiene and sanitation. Bacillary dysentery causes sudden onset of high fever and chills, abdominal pain, cramps and bloating, urgency to pass stool, weight loss, and dehydration and if left untreated it can lead to serious complications including delirium, convulsions and coma. A serious infection like this can be fatal within 24 hours. The objective of this study is to investigate the in vitro susceptibility of *Sh. flexneri* and *Sh. dysenteriae* to the *T. ammi* and *P. harmala*. *T. ammi* and *P. harmala* were extracted by 96% ethanol using Soxhlet apparatus. The antimicrobial activity of the extracts was investigated according to the disc diffusion method. The discs were prepared by soaking sterilized filter paper discs in 20 microliter of serially diluted solutions of each plant extract with the concentrations (100, 50, 25, 12.5, 6.25mg/dl) then placing them on Muller Hinton Agar plates that were inoculated with bacterial suspension separately, the plates were incubated for 24 hours at 37°C and the minimum inhibitory concentration of the extract which was the least concentration of the extract to inhibit fungal growth was determined. The results showed the high antimicrobial activity of *T. ammi* extract with an average diameter zone ranging from 18-20 mm and its minimum inhibitory concentration was found to be 25 mg/ml against the two *Shigella* species. *P. harmala* extract was found to have slight antibacterial effect against the two bacteria. This result justified the Sudanese traditional use of *Trachyspermum ammi* plant for the treatment of bacillary dysentery.

Keywords : harmala, peganum, shigella, trachyspermum

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